

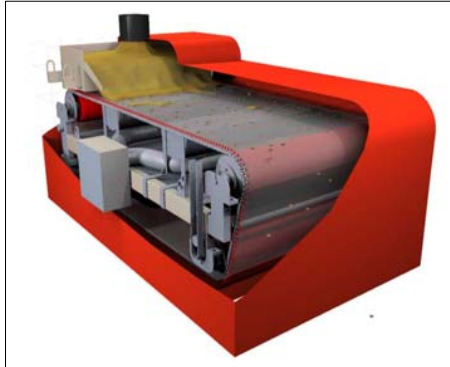


Parallels of technology  
investments and  
exploration success

Finding Petroleum  
Conference  
21<sup>ST</sup> January  
by Greg Herrera

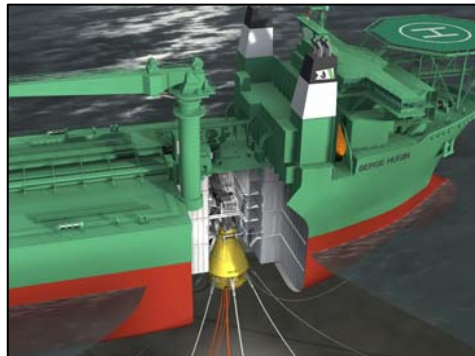
energy ventures 

# Energy Ventures has a strong capital base and invests in upstream technologies



## Strong Management

- Industrial foundation
- Excellent network
- Technology understanding
- Relevant experience
- Business acumen



## Industry Trends

- Growth in demand
- Oil and gas remain main sources of energy
- E&P activity slated to grow
- **Technology - key to bridging the energy gap**



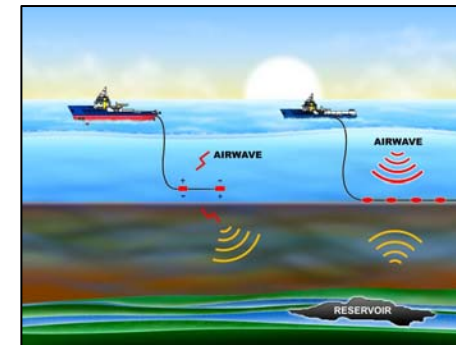
Three energy sector  
VC funds with total  
commitments of  
NOK 2,300 / USD 410 million

## Main Focus

- High growth oil and gas technology companies
- Unique technology solutions
- Combination of capital and competence to create value for investors

## Main Investors

- |                        |                |
|------------------------|----------------|
| • Ferd                 | • IKM Group    |
| • Temasek Holdings     | • Storebrand   |
| • LGT Capital Partners | • Jebsen       |
| • Gjensidige           | • Umoe         |
| • KLP                  | • Klaveness    |
| • DnB NOR/Vital        | • Hoegh        |
| • Argentum             | • Schlumberger |



# The Team: Bringing Global Experience & Knowledge

**Einar Gamman**  
Partner: former co-founder & chairman of Reslink – naval architect

**Helge Tveit**  
Partner: co-founder of EV - former BP reservoir engineer

**Kjell Jacobsen**  
Partner: former CEO of Seadrill

**Ole Melberg**  
Managing Partner: former CEO of Smedvig

**Greg Herrera**  
Partner: former investment banker w/Simmons & Hydril

**Jim Sledzik**  
Partner: former VP of marketing & global multiclient services for WesternGeco - geophysicist

**Leif Andre Skare**  
Partner: co-founder of Noreco & former XOM – mechanical engineer

**Anoop Poddar**  
Partner: former investment banker w/ Simmons & SLB IPM – drilling engineer

**Houston**

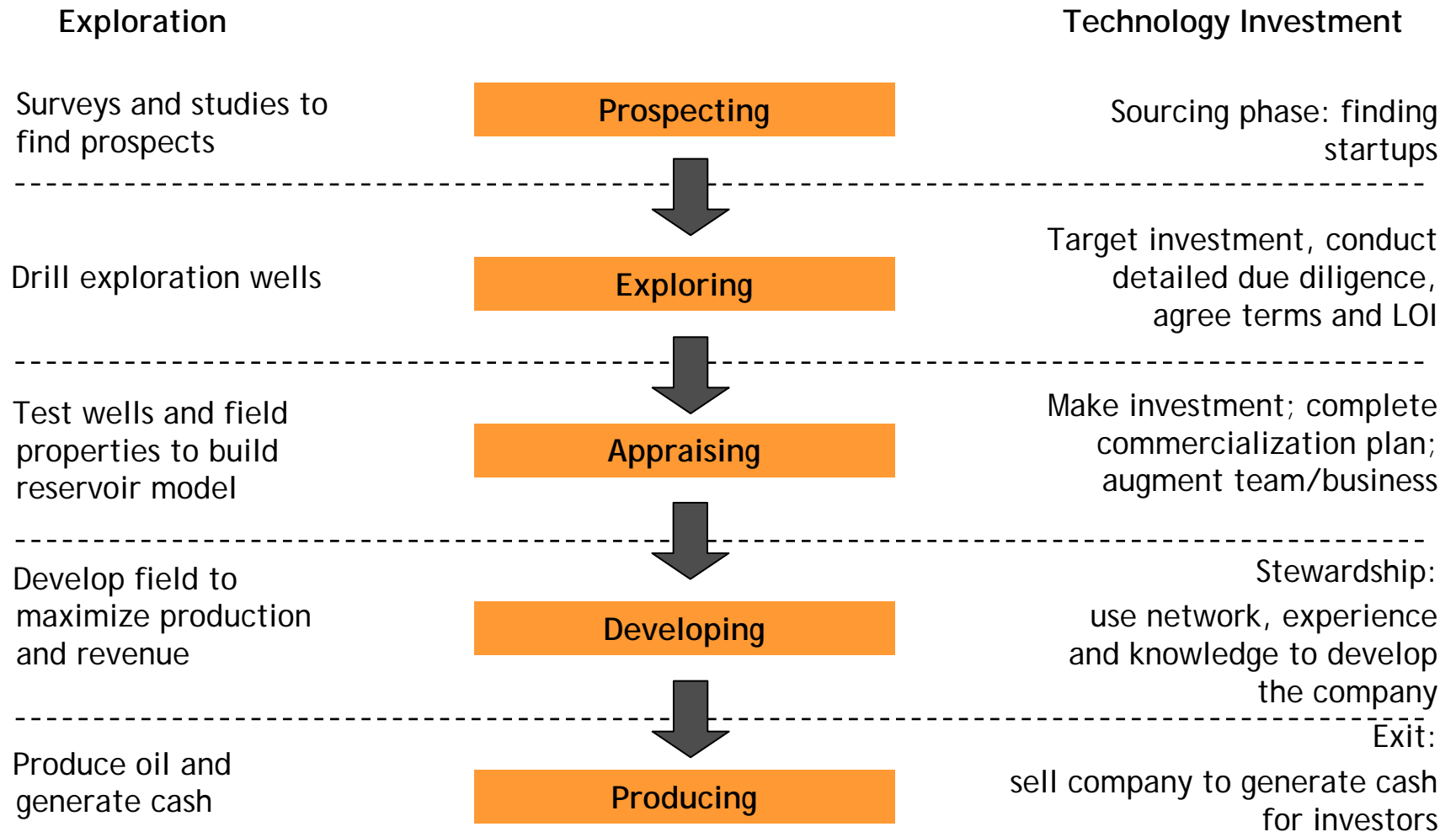
**Stavanger**

**Aberdeen**

**Rep office Rio**

**Representative office Shoabi Group**

# The parallels of technology investment and petroleum prospecting

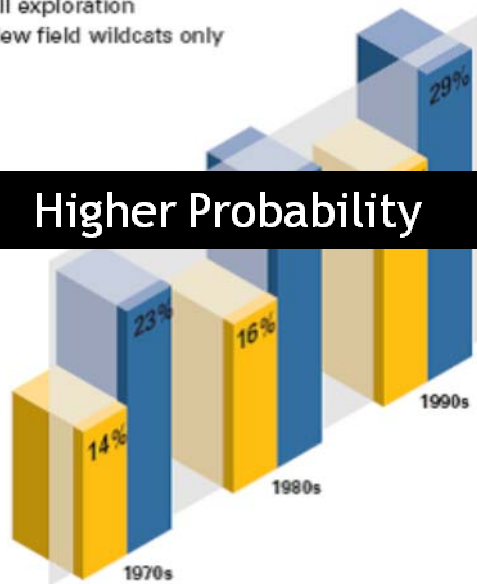


# Exploration success improves with innovation in technology investments

## Exploration Success Rates

Despite a dwindling resource base, U.S. exploration success rates continue to improve.

- All exploration
- New field wildcats only



Higher Probability

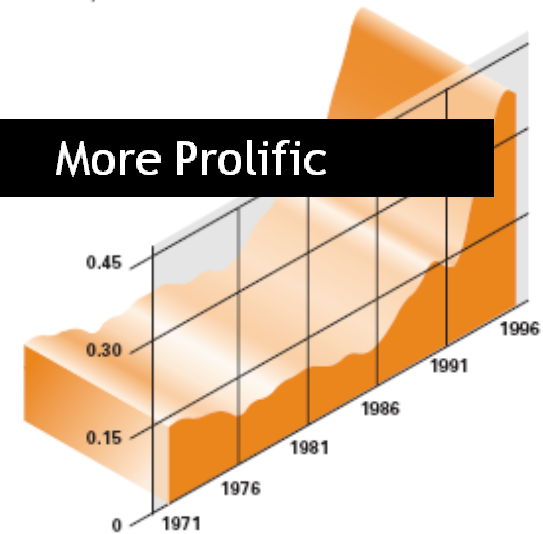
Source: American Petroleum Institute



## BOE New Reservoir and New Field Reserve Additions per Exploratory Well

(Million barrels of oil equivalent per well)

The volume of reserves added per exploratory well has increased dramatically since the 1970s and early 1980s.



Source: U.S. Department of Energy

E & P success due to innovations such as computers, remote sensing, GPS, GIS, 3D-4D seismic, logging technologies, drilling technologies etc.

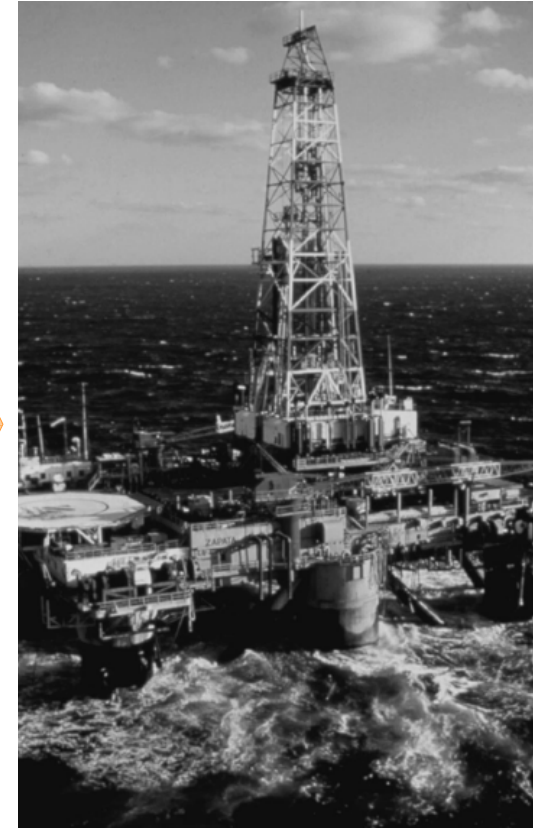
# Oil and gas innovation is a story of successful private investors and entrepreneurs taking risks



Humble beginnings

- James Townsend (Seneca oil) funded Colonel Drake to explore for oil in Titusville. Drake innovated the use of conductor strings to stabilize the earth.
- Marcel and Conrad Schlumberger were funded by their father to invent the first geophysical logging tool in 1923.

- 
- Petrel changed the way reservoir modeling is done by simplifying and making it more effective.
  - Reslink innovates in pre-packed screen, shunt technology making step change in sand screens.



Grand scale

## Current state of the art: what could the future hold?

**A** We know how to do seismic surveys to get a picture of the reservoir.

Wouldn't it be nice to have a higher resolution picture of the reservoir?

**B** We know how to log for rock properties and correlate empirically.

Wouldn't it be nice to exactly measure the in-situ porosity and permeability in real-time?

**C** We do 4D seismic to ascertain the reservoir conditions over time.

Wouldn't it be nice to have permanent seismic monitoring reporting live data on reservoir drainage?

**D** We can log the well to know its condition.

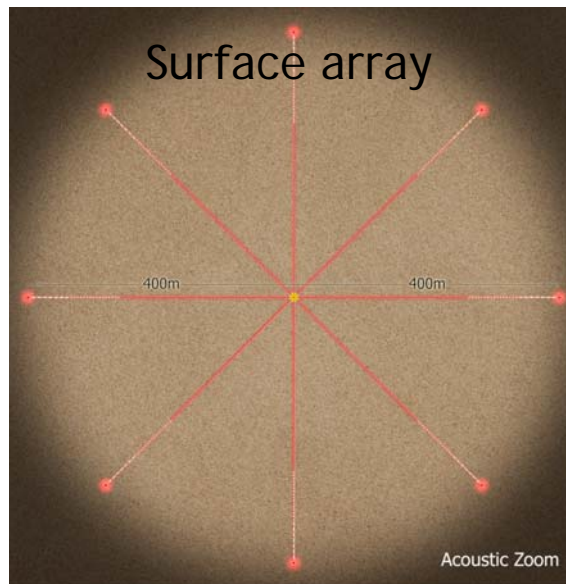
Wouldn't it be nice have a permanent, real-time log of the well, giving us a live health report?

**E** ESPs and coiltubing have been in use for a long time now.

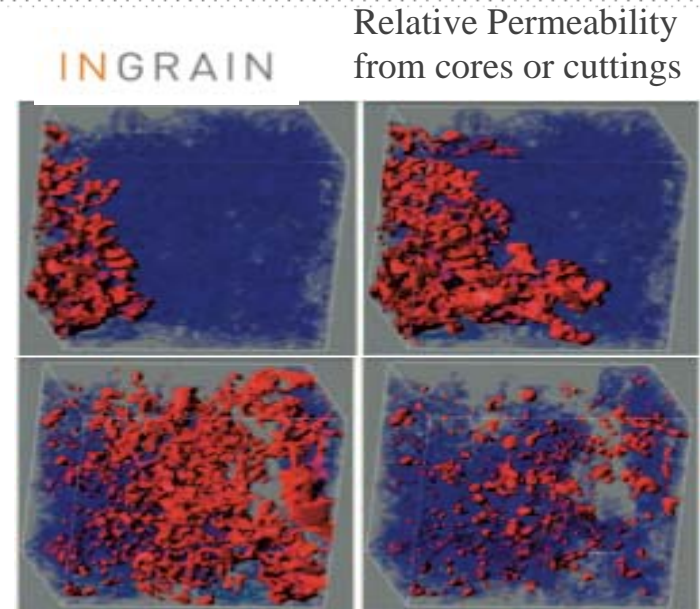
Wouldn't it be nice to have ESPs that don't fail and coiled tubing which can reach further, both giving real-time data?

## Deep Earth Telescope

- Coherently captures normal specular and scattered off-specular returns
- Theoretically capable of high resolution acoustic images five to 10 times greater than conventional 3D and 4D seismic

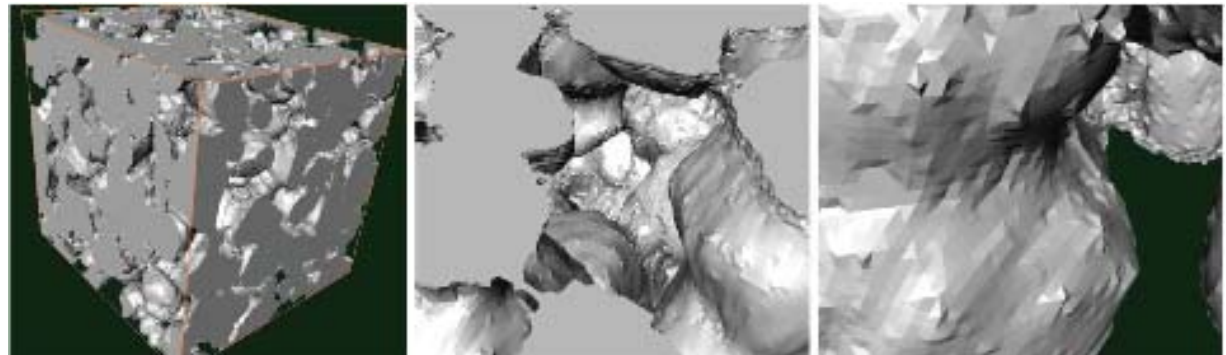


- Near-real-time measurements of reservoir properties from cores and drill cuttings
- Uses MRI/CT scan technologies together with proprietary computational methods to create complex 3D images of the rock samples.
- Accurate in difficult formation types (oil sands, shales, low perm rocks)
- Deliverables include absolute and relative permeability, porosity and elastic properties.



*Ingrain's digital rock physics lab reduces drilling risk, improves reservoir models and improves net recovery of oil and gas.*

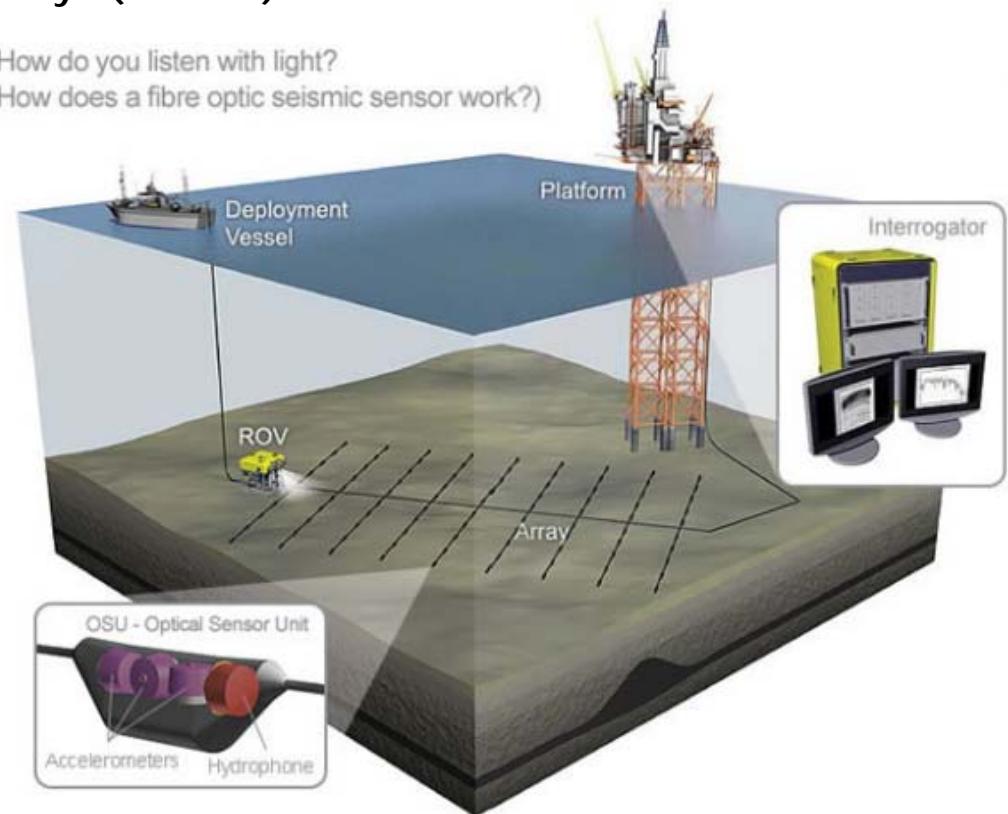
Micritic carbonate imaged at increasing magnification. The images are (left to right) about 20, 8, and 2 microns across.



## Enabling reliable, high-fidelity, cost-effective Permanent Reservoir Monitoring (PRM) using passive fibre-optic sensing arrays (Fosar®)

- Highly reliable system with lower HSSE exposure.
- Faster: 'Seismic on Demand'
- More cost effective: lower up-front and through life costs than existing alternatives
- Passive sensors with no electronics under water
- Simple components with proven longevity- extremely low failure rates
- Highly scalable, multiplexing greater number of sensors on a lower number of fibres - a cost advantage

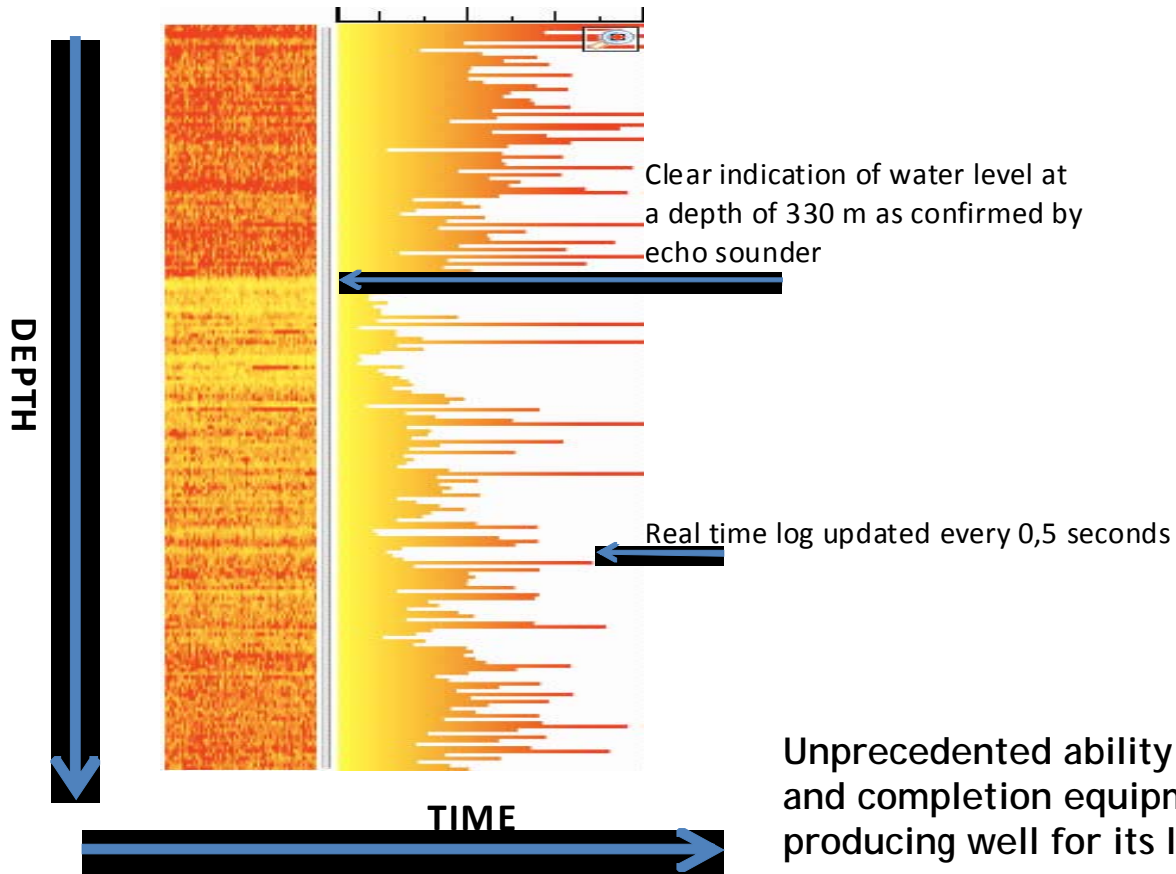
How do you listen with light?  
(How does a fibre optic seismic sensor work?)



Information is more complete and conveyed faster than conventional 4D seismic - enabling enhanced oil and gas recovery potential

*Fotech is a state-of-the-art fibre optic start-up providing acoustic, temperature and pressure data*

Well started at 120 RPM



- A unique fibre-optic based distributed acoustic monitoring solution that can be used for production optimisation, zonal flow allocation, leak detection and asset monitoring
- Very sensitive, can detect events up to 40 kilometres and with 1 meter accuracy
- Distributed pressure sensing technology under development

Unprecedented ability to monitor hydrocarbon production and completion equipment in real-time throughout a producing well for its lifetime

Better recovery and lower field development cost

## Zeibel: Well Completion Solutions



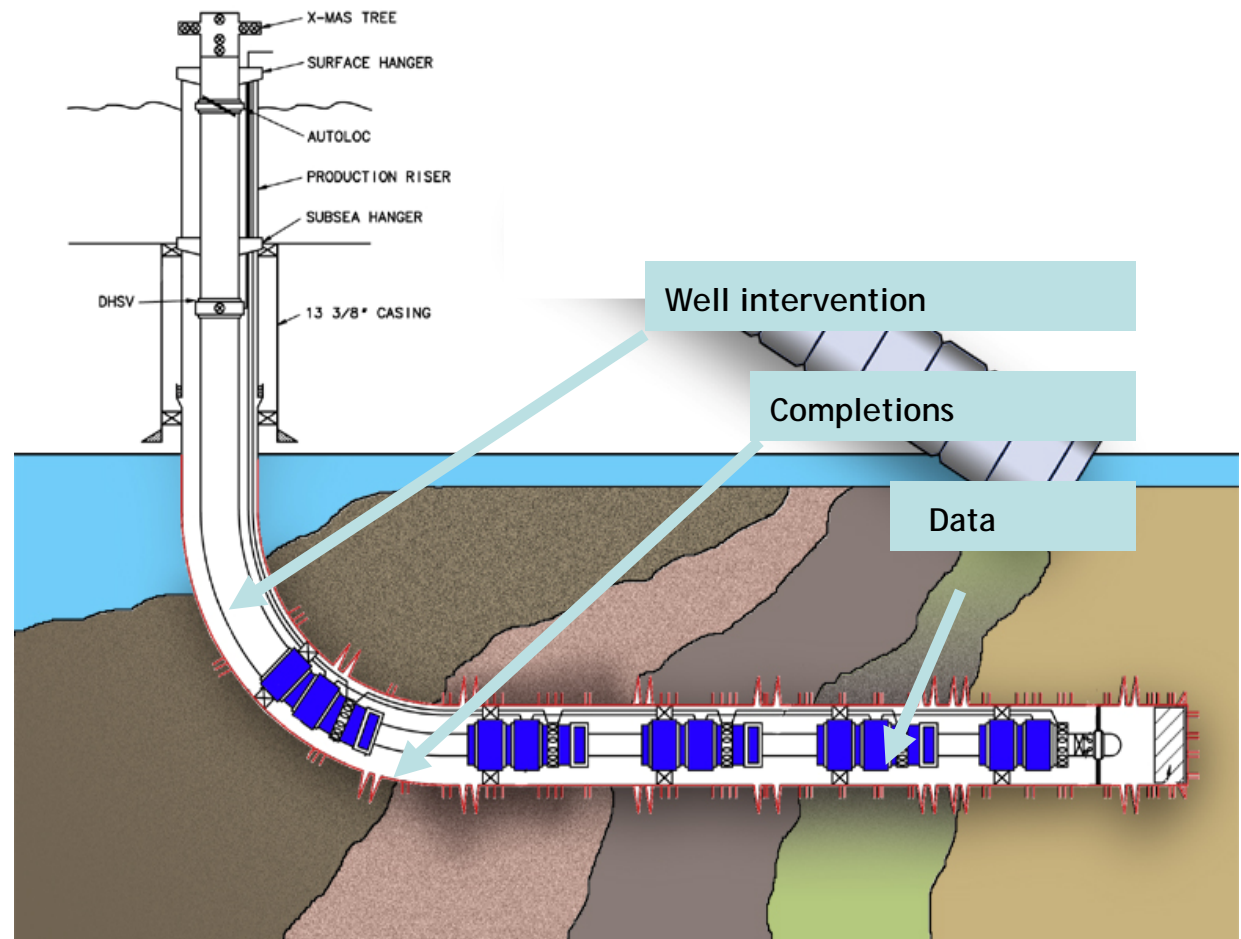
*Innovative, lightweight and cost effective log-reach intervention and logging hardware;  
Unique artificial lift technologies*

### Intervention services

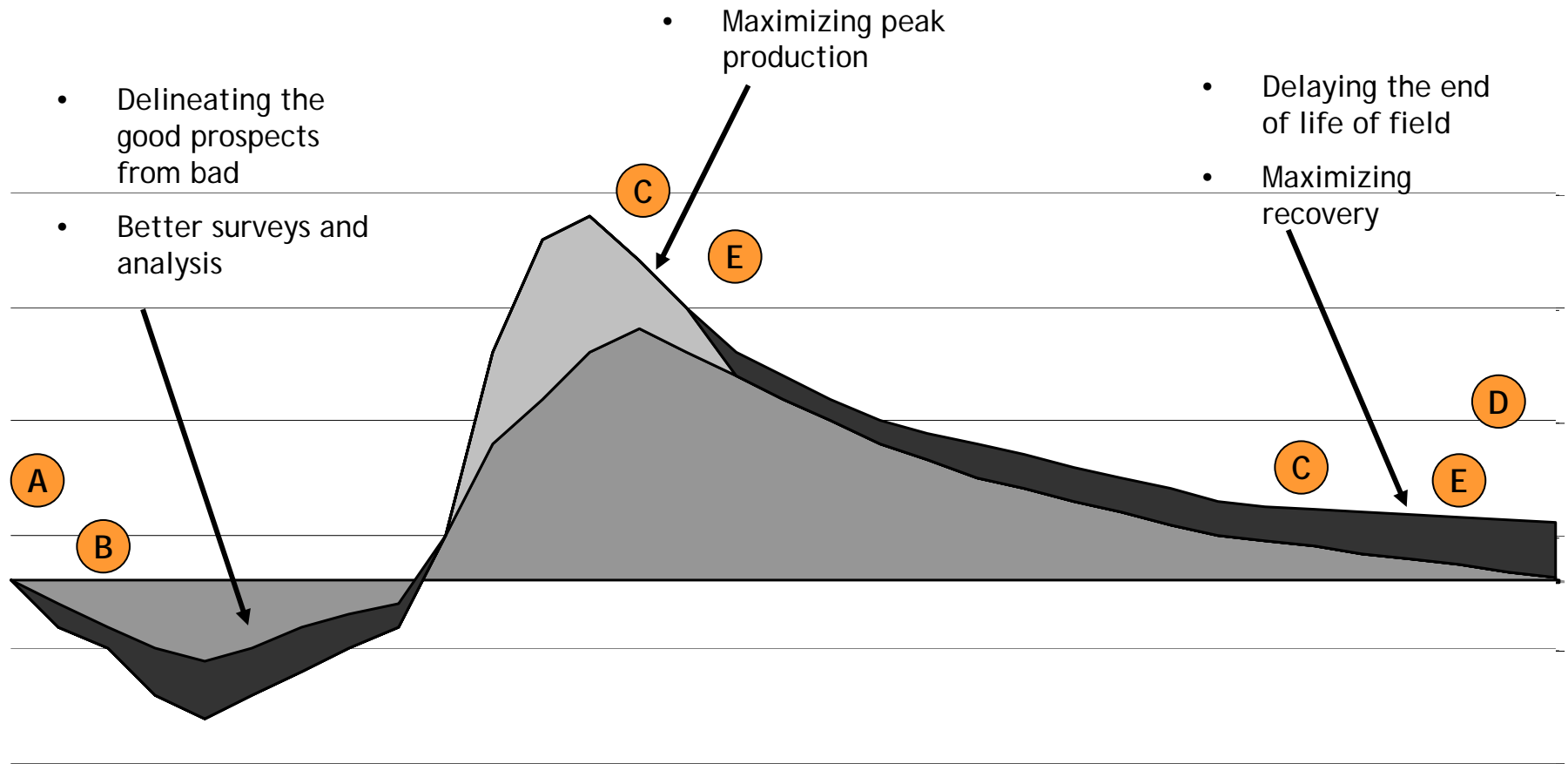
- Real-time well data monitoring
- Extended reach is better, cheaper and more reliable than conventional coil, TLC
- Smaller footprint

### Artificial lift services

- Cheaper more effective ESPs that just work
- Wireline installed equipment, allows for easy retrieval and installation
- Simple design, implies lower failure rate



# EV works across the upstream lifecycle to engender technologies that improve production



# EV works across the upstream lifecycle to empower and foster new technology

## Exploration and Appraisal

ARkEX

MTEM  
MULTI-TRANSIENT

INGRAIN



## Field Development



RealityMobile  
sigma



## Drilling



RealityMobile  
CUBILITY



NovaDrill



## Late Life



## Production Enhancement



RealityMobile



energy ventures

## Contact details

# energy ventures

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